

IN THE CLAIMS

1. (currently amended) A wheelchair with at least a pair of rear drive wheels arranged in left and right chair frame sections and a pair of driven wheels arranged in the left and right chair frame sections for enabling forward and reverse driving and steering of the wheelchair, wherein an improved wheelchair including :

at least one pair of forced driven caterpillars which have a plurality of cylindrical wheels (146, 147 and 1468) with rotary shafts in their central portions and grooves in their peripheries so that at least one flexible belt (149) is wound around the wheels, wherein the belt is in contact with the wheels to define linear sections between adjacent ones of the wheels so that the linear sections define a plurality of sides of at least a triangle, one of two sides having an obtuse exterior angle there between being parallel with the ground side and other one being defined the frontmost wheel forms an approach angle with respect to the ground, and wherein at least one of the wheels is provided means being driven by transmitted force, and means for coupling the wheels to a front section of the chair frame, thereby readily driving over obstacles or depression on a road;

at least one caster wheel which is provided with control means of lifting up and down against chair body mounted on the front section of the chair body, thereby free steering toward all directions, in which the caster wheel is provided coincidentally with the caterpillars so that the caster wheel and the caterpillars selectively contact the ground to facilitate turning and climbing, wherein the caster wheel and the caterpillars alternately support a front section of a chair body on the ground;

an auxiliary power source for driving the caterpillars; and
an wheel-hub mounted ratchet devices which connect or disconnect the drive wheels
to the caterpillars.

2. - 3. (cancelled)

4. (currently amended) The wheelchair as claimed in claim 1, wherein the chair body
further ~~A foldable wheelchair body frame for use in a seat, in which further~~ comprises:

a X-shaped frame structure for an auxiliary wheel which is constituted with two rod members of equal length and coupled each other with hinge means at their middle portions;

two rod members of equal length having hinge means at both ends hinged with each other to define an L-shaped structure and the other ends are coupled with the hinge means on the X-shaped frame structure between the cross point and ends of the X-shaped frame to provide at least a set of symmetric quadrangular linkages having four sides connected via four joints;

means for coupling the ends of the rod members of the X-shaped frame structure with left and right upper portions of the body frame rotatably, wherein the other ends of the X-shaped frame structure contact lower portions of the body frame to support the same; and

means for vertically supporting a steering shaft of the auxiliary wheel on the X cross point and the L crosse point.

5. (currently amended) The wheelchair as claimed in claim 1, wherein the caster wheel

~~A wheel chair caster wheel with vertical shaft for steering, in which~~ further comprises:

a knuckle cylinder of an elongated cylinder body for supporting the caster on a chair body and having a cylindrical elastic member and surrounding the ball-retaining cylinder, wherein the hollow washers contact and support both ends of the elongated cylinder, a ball-retaining cylinder having a cylindrical wall and a plurality of steel balls inserted into the cylindrical wall, both ends of the ball-retaining cylinder being supported by hollow washers and rolling bearings, wherein the ball-retaining cylinder is placed around the steering shaft;

a fastening member for coupling one end of the steering shaft hingeably about the shaft;

wherein the steering shaft is buffered and supported with respect to the knuckle cylinder coupled with the chair body, and supported by the rolling bearings during axial rotation and vertical sliding; and

wherein the traction cable is connected a to steering shaft via a washer to pull against knuckle cylinder.

6. (currently amended) A ratchet device which prevents wheelchair drive wheels from rolling rearward on a ramp in order to help the driver move safely in person without carers, wherein an improved ratchet device including :

a plurality of ratchet arms (217) formed from plate members of a thickness with a round rod;

a shaft ratchet gear (203) formed in a peripheral portion of a flange formed in a middle of a cylindrical shaft member (208) of a length, and provided in a central shaft with one end coupled with a chair body, engaged and disengaged with plate member of the ratchet arms in response to contact of a cam;

a cylindrical sleeve (210) of a length having one end coupled with a power transmission wheel (140) and a ratchet gear (211) formed around the other end thereof equal to a thread tip circle of the shaft ratchet gear (203), wherein a shaft portion of the shaft ratchet gear (203) is inserted into a hollow portion of the cylindrical sleeve (210), and wherein the ratchet gears are formed rotatable and placed coaxial and adjacent with each other ;

a hub clutch housing having a cylindrical housing member (215) for coaxially receiving the cylindrical sleeve (210) and the shaft ratchet gear for rotatably supporting both ends and coupling means arranged around the cylindrical housing member (215) for coupling with a hub of a drive wheel;

two planar notches formed in intermediate portions of a rod member (221, 222) having a predetermined length and inclined with respect to each other symmetrically about a sectional axis functioning as a curvature for ratchet arm control;

cam shafts slide in together with two elastic members (224) into holes formed to a depth in the housing member (215);

a cam holder disk (225) in the form of a hollow circular plate perpendicularly coupled with one ends of the cam shafts;

a hollow member having contact means and a spacing plate (235) and being in contact with a face of the cam holder disk;

an axial slot hole formed in one end of a drive shaft;

a cylindrical pin (207) perforated through the hole perpendicularly with the shaft and having both ends projected beyond the shaft diameter;

a traction cable (240) inserted into a hollow hole in an axial center of a drive shaft (208) and having one end coupled with the cylindrical pin, wherein when the traction cable is pulled, the cylindrical pin presses a spacer plate so that the cam shaft presses the elastic member (224) in an axially movable fashion, and when the traction cable is retracted, the cam shaft is moved reverse by the elastic member (224);

a drive wheel hub (203) made of a cylindrical member and provided in an inner peripheral face of a hollow hole at one end with means for receiving the housing and in an outer periphery with means for connecting with an outer wheel of the drive wheel, wherein the drive wheel is detachably coupled with the hub clutch housing (215) via fastening means (237) to transmit a driving force to the housing, wherein the traction cable is adjusted to select the position of the cam shaft;

an elastic member (218) for applying a repulsive force to one face of the one ratchet arm which is pivot to a portion of the cylindrical housing member (215) so that the other face of the one ratchet contacts the cam shaft, wherein the ratchet arm contacts a cylindrical face or a planar portion of the cam shaft according to the sliding position of the cam shaft so that the first ratchet gear selectively performs one-directional rotation stop and bidirectional rotation;

wherein one sides of the two ratchet arms are pivoted, respectively, to portions of the cylindrical housing, and one faces of the ratchet arms are elastically repulsed by the elastic member (218) so that the other faces thereof is in contact with the second cam shaft,

wherein the ratchet arms contact cylindrical faces or planar portions of the second cam shaft according to sliding positions of the cam shaft so that ratchet gear performs bi-directional rotation stop and bi-directional free rotation, so that the drive wheel and the power transmission wheel (140) cooperate with each other to enable bi-directional rotation, to prevent backward driving and to allow bi-directional idle rotation of the drive wheel.

7. - 10. (canceled)